

WHAT IS CLAIMED IS:

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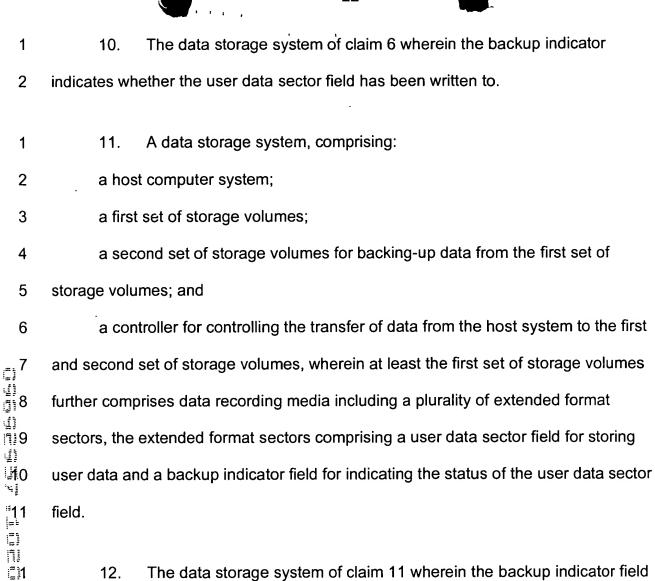
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- 1 1. A data recording media comprising a plurality of extended format
 2 sectors, the extended format sectors comprising a user data sector field for storing
 3 user data and a backup indicator field for indicating the status of the user data sector
 4 field.
- 1 2. The data recording media of claim 1 wherein the backup indicator field 2 indicates whether the user data in the user data sector field has been written to 3 backup storage subsequent to a previous backup operation.
 - The data recording media of claim 1 wherein the backup indicator comprises a single bit.
 - 4. The data recording media of claim 1 wherein the backup indicator comprises an indicator of whether the user data in the user data sector field has been written to backup storage subsequent to a previous backup operation and data indicating the age of the user data in the user data sector field.
 - 5. The data recording media of claim 1 wherein the backup indicator indicates whether the user data sector field has been written to.

1	A data storage system, comprising:
2	a magnetic storage medium having servo information recorded on servo
3	tracks interspersed between a plurality of extended format sectors;
4	a motor for moving the magnetic storage medium relative to a magnetic head
5	assembly; and
6	a head assembly having at least one read head for reading and writing data
7	on the a plurality of extended format sectors;
8	wherein the extended format sectors further comprises:
9	a user data sector field for storing user data; and
_1 0	a backup indicator field for indicating the status of the user data sector
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1 1	7. The data storage system of claim 6 wherein the backup indicator field
	indicates whether the user data in the user data sector field has been written to
2 3	backup storage subsequent to a previous backup operation.
<u>=</u> 1	8. The data storage system of claim 6 wherein the backup indicator
2	comprises a single bit.
1	9. The data storage system of claim 6 wherein the backup indicator
2	comprises an indicator of whether the user data in the user data sector field has
3	been written to backup storage subsequent to a previous backup operation and data
4	indicating the age of the user data in the user data sector field.



- 12. The data storage system of claim 11 wherein the backup indicator field indicates whether the user data in the user data sector field has been written to backup storage subsequent to a previous backup operation.
- 1 13. The data storage system of claim 11 wherein the backup indicator2 comprises a single bit.

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- 1 14. The data storage system of claim 11 wherein the backup indicator
 2 comprises an indicator of whether the user data in the user data sector field has
 3 been written to backup storage subsequent to a previous backup operation and data
 4 indicating the age of the user data in the user data sector field.
 - 15. The data storage system of claim 11 wherein the backup indicator indicates whether the user data sector field has been written to.

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- 16. The data storage system of claim 12 wherein the first set of storage volumes is arranged as a virtual space wherein the host views the configuration as being a storage device having a first predetermined size and the controller allocates storage space from the first set of storage volumes having a physically smaller size than viewed by the host.
- 17. The data storage system of claim 16 wherein the controller periodically determines which sectors have been written using the backup indicator to predict when the host will need additional physical space.
- 18. The data storage system of claim 16 wherein the controller allocates additional storage space on the first set of storage volumes before the host requires additional storage space to minimize delays to the host.
- 1 19. The data storage system of claim 18 wherein the controller reads the backup indicator to determine when a usage threshold have been exceeded.



A method for tracking the status of writes to areas of a storage device, 20. 1 2 comprising: initializing a storage system and clearing a backup indicator field in an 3 a) extended format sector used for indicating the status of a user data sector field of 4 the extended format sector; 5 6 setting the backup indicator when a host writes to a user data sector b) field; and 7 8 c) reading every sector included in a host user area of the system drive 9 and backing-up only user data sector field in the extended format sectors having the <u>-</u>10 backup indicator field set. 1 1 21. The method of claim 20 further comprising: **1** 2 clearing the backup indicator field after the user data sector field has d) 3 been backed-up. 1 22. The method of claim 21 further comprising repeating b)-d) for each 2 subsequent backup.

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